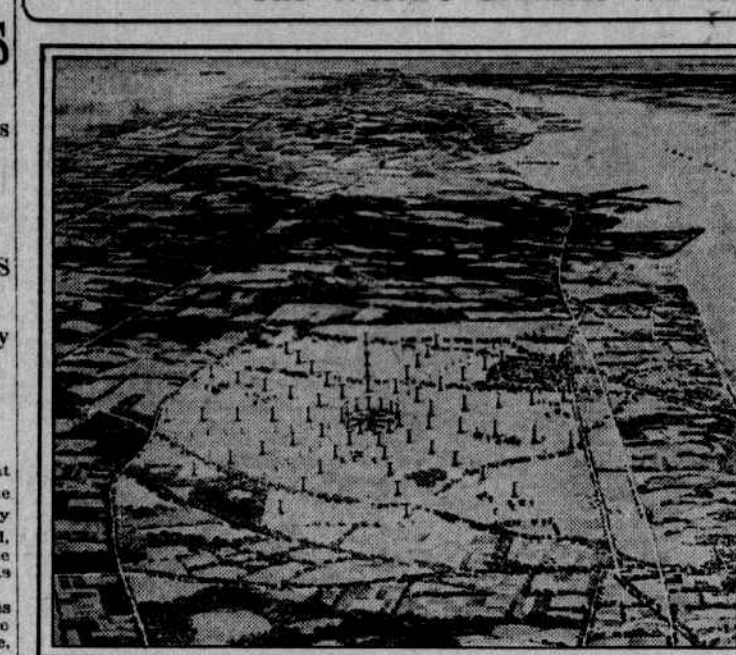


THE WORLD'S GREATEST WIRELESS STATION.



RADIO CENTRAL AS IT WILL APPEAR WHEN COMPLETED.

Station at Port Jefferson Is Now Only One-sixth of Its Future Size.

Transatlantic Talk Is Easy and Messages Go Right From New York City.

Although Radio Central, the great transatlantic wireless station of the Radio Corporation of America, is easily the most powerful station in the world, it is dwarfed into insignificance by the vastness of the size it will become as the use of radio telegraphy increases.

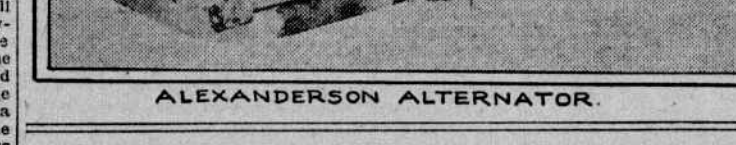
Radio Central, located at Port Jefferson, on Long Island, is at the present time, for all its greatness, just one-sixth the size of the station into which it is to develop. It can now send a message flashing half around the globe, but when it is completed the distance around the world will be a small yard stick to measure its power. Two of the twelve units of which it is to be composed are finished; when one more is complete radiotelephony between the United States and Europe will be an accomplished every day fact.

It is because of the potentialities of Radio Central that it is of such interest even to those who are not in the least attracted by a lure of WJZ's music or the perplexing problems of hooking together a receiving set.

At the present time the big station at Rocky Point consists of a line of twelve antenna towers, broken in the middle, connected with the Alexander high frequency alternators of 200 kilowatts each. The towers stretch over a distance of three miles.

When Radio Central is finished it will consist of two lines of antenna towers, each of six towers. In appearance Radio Central will be like a wheel, the hub containing the power houses and other buildings of the station, and the antenna lines, twelve spokes, each a mile and a half long. The present line of towers is simply a diameter across the vast circle which is to come.

The great tower, 410 feet in height, with a cross arm 140 feet in length supporting the wires of the antenna at the top. About 150 tons of steel is used in each tower and 750 tons of concrete for each foundation. The towers support a multiple tuned antenna of sixteen wires, eight on each side of the cross arm.



ALEXANDER ALTERNATOR.

TUNING CRYSTAL DETECTOR SETS TO GET BEST RESULTS

With Proper Installation Assumed, Simple and Correct Operation of Receiver and Systematic Use of Controls are Outlined.

By A. F. VAN DYCK.
Radio Engineer, General Electric Co.

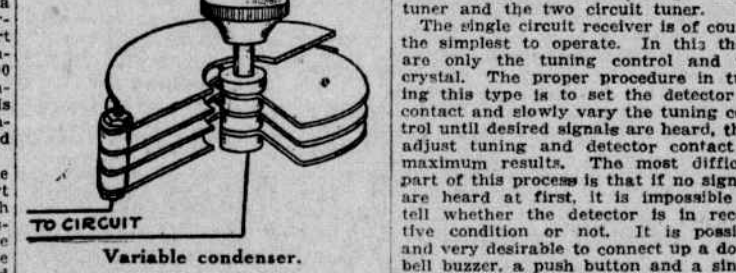
The basic rule to be followed for best results in the tuning of a radio receiver is to vary the electrical characteristics of the tuning circuit in such a manner as to make the receiver act as a selective circuit, and to make it as simple as possible to adjust the tuning circuit to the desired frequency.

Also it is found that if there are connected in the circuit two metal plates, which are placed near to each other but not touching, and one of them is connected to the antenna, the length of the circuit. Such a device is called a variable condenser. Sometimes both condenser and adjustable coil, called variable inductance, are used.

There are two somewhat different ways of connecting up the tuning devices which are in common use to-day. These are known as the single circuit and the double circuit.

The single circuit receiver is of course the simplest to operate. In this there are only the tuning control and the crystal. The proper procedure in tuning this type is to set the detector in contact and slowly vary the tuning control until desired signals are heard, then adjust tuning and detector control to maximum results. The most difficult part of this process is that if no signals are heard at first, it is impossible to tell whether the detector is in receptive condition or not. It is possible, and very desirable to connect up a doorbell buzzer, a push button and a single dry cell battery so as to test the detector and set it in sensitive condition.

Also it often happens in a house equipped with electric lights, that the switching on or off of a lamp makes



Single circuit connection.

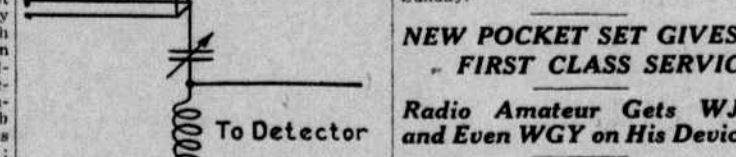
and as clear of surrounding buildings and trees as possible, that the ground connection is a good one and that electrical joints in the aerial and ground wires are soldered. Then, too, all connections on the apparatus are to be well made and the batteries to be in good condition. The general rule is to be careful or too thorough in the installation of a set if it is expected to be able to operate it day after day without tedious delays hunting for troubles and correcting them.

Tuning, in the meaning of this article, is the process of adjustment of receiving apparatus to accord with a particular transmitting station, in order to obtain the greatest response to that station's waves. A radio transmitting station sends electro-magnetic waves through the air, and these waves, if they are of the right frequency, are picked up by the receiving antenna. These waves, as they get farther from the sending station, get weaker. When a wire is elevated above the surface of the earth it is struck by cosmic radio waves. Radio waves are really moving electric forces, just as waves in water are moving mechanical forces, and when they strike a wire they cause it to move, electrically, just as a water wave causes any object to move which is put into the water. The tuning of the aerial is for the simple purpose of so adjusting the aerial wire that it can vibrate after the big station.

Although Radio Central is the most powerful station now, it is not the only one which uses the big alternators which made transatlantic radio communication a commercial possibility. Seventeen other stations have been built at Schenectady and four more are now being finished. Other stations having these high frequency dynamos include the stations at New Brunswick, N. J.; Marconi, Mass.; Kahuku, Hawaii; Bollinas, Cal.; and Carnarvon, Wales. Two alternators are to be installed in the high power station being erected at Warsaw, Poland, for the Polish Government.

The alternator is the invention of Ernest P. Wigner, and was installed in New Brunswick station just before the war ended, in October, 1918. The alternator was built by the Marconi Company, and was considered, at the time, as a masterpiece of engineering. A staff consisting of an engineer in charge and fifteen assistants took after the big station.

At the present time the station at New Brunswick is the most powerful station in the world, and it is not the only one which uses the big alternators which made transatlantic radio communication a commercial possibility. Seventeen other stations have been built at Schenectady and four more are now being finished. Other stations having these high frequency dynamos include the stations at New Brunswick, N. J.; Marconi, Mass.; Kahuku, Hawaii; Bollinas, Cal.; and Carnarvon, Wales. Two alternators are to be installed in the high power station being erected at Warsaw, Poland, for the Polish Government.



Two circuit connection with crystal detector.

enough electrical disturbance to hear on the radio receiver as a sharp click. This click is not heard if the detector is not in sensitive adjustment, so that the detector can be adjusted while the switch is being turned on and off until the clicks are heard most loudly.

Note: The tuning of vacuum tube sets will be discussed by Mr. Van Dyck in another article to be published next Sunday.

NEW POCKET SET GIVES FIRST CLASS SERVICE

Radio Amateur Gets WJZ and Even WGY on His Device.

The latest in pocket sets has been constructed by George A. Steier, known in the radio world as 2AAR, a radio amateur whose station is at 584 East 124th street, The Bronx.

Mr. Steier has been able to get not only WJZ in Newark, about fifteen miles away, but also WGY, at Schenectady, using a sixty foot single strand aerial mounted on the roof of a four story house.

The set is in a case made of a clear box 3x5x11 inches. Both top and bottom of the box are hinged, and the inside of the other cover is mounted a silicon detector of the cat whisker type and a fixed condenser of .001 mfd. capacity, across which are the phones. The set tunes in sharply to everything between 600 and 50 meters.

Radio Faster Than Cable.

In commercial transatlantic communication it is possible to send at the rate of 300 letters a minute. This is about twice as fast as the average sending rate by cable. It is likely that this speed will be increased in the future.

THE WEEK IN THE RADIO FIELD

Dr. Royal S. Copeland, Commissioner of Health, to Lecture on Physical Culture at WJZ—Lectures by Tufts Professors From Amrad Station.

The program for the coming week of the various radio stations in this city, which can be heard within a radius of several hundred miles of New York are presented herewith. During the week this New York Herald will print the daily program of the stations each morning.

Tune instruments for 350 meter waves, except in the case of WJZ, which sends on 1,450 meters.

Station WJZ, Newark.

(WESTINGHOUSE.)
Musical program week days, every hour from 9 A. M. to 6 P. M. of the hour.
Weather forecast (official)—Daily, 11:00 A. M., 12:00 P. M., 5:00 and 10:00 P. M.
Shipping news—Daily, 2:00 P. M.
Occupying stations by Marine Engineering and Shipping Agency.
Official Arlington time 9:52 P. M.
Agricultural reports, official, daily 12:00 P. M. and 4:00 P. M.
Final baseball scores every evening at 7:00 o'clock.
Program changes announced by radio telephone.

SUNDAY.
9:00 P. M.—Radio chapel services; sermon, "God's Glory and Man's Glory," by the Rev. Charles T. Walker, of the First Presbyterian Church of New York; sacred music by the church quartet, composed by Miss Val. Rosen, Miss Lena Lea, contralto; J. Richard Laut, tenor, and Ralph Tomlinson, basso; E. Ward Steady, organist.
9:30 P. M.—Sacred music recital by the Duos of New York City, Ralph May, alto, and Charles T. Walker, tenor.
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10:00 P. M.—Musical program.

MONDAY.
7:00 P. M.—Chilman's songs, by Mary Alana Stuart of New York.
7:10 P. M.—Stories from St. Nicholas Magazine, by Miss Helen G. Brown.
7:20 P. M.—"The Hopeful Side of the Cancer Problem," by Francis Cantrill, of the American Red Cross.
7:30 P. M.—Concert given under the direction of Charles D. Isaacson of the New York Evening Mail. Special concert by the New York City Music Week.
7:40 P. M.—"What is the Meaning of Music Week?" by Miss Helen G. Brown.
7:50 P. M.—"The Meaning of Music Week," by Miss Helen G. Brown.
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Every evening except Saturday and Sunday stock and produce market reports will be announced at 7 o'clock.

TUESDAY.
7:00 P. M.—Stock and produce market reports, 7:05 P. M.—"The Travels of Literature," Charles Hamilton, superintendent of mails, Boston.
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